

REMARKS

Claims 1-22 are pending and stand rejected. Claims 1, 7-9 and 18 have been amended. New claim 23 has been added. Applicants respectfully request reconsideration of the rejection in view of the following remarks.

Applicants respectfully submit that support for the claimed “non-graphitized” coating of independent claim 1 derives from Example IV of the specification (which also refers back to Example II). Specifically, the phenolic resin coating is pyrolyzed during processing, (at a temperature of about 900C), but graphitizing requires much higher temperatures. The Papenburg Patent supports this, as he graphitized at a temperature above about 2000C. Thus, the pyrolyzed resin of the Examples are non-graphitic, and as such are supportive of the claim.

The Prior Art Rejections

Claims 1-9 and 12-22 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,505,805 to Papenburg et al. (hereinafter referred to as “Papenburg”). Applicant respectfully submits that this rejection is now moot.

Specifically, independent claim 1 has been amended to recite that the coating that is placed between the carbon fibers and the matrix is non-graphitic in nature. This can be significant when the coating is obtained by pyrolyzing a carbonaceous resin. What applicant is saying is that it is sufficient in his invention to simply carbonize such a resin, and that he does not have to further heat the carbonized resin to still higher temperature to convert at least some of the carbon to graphite. In contrast, in Papenburg, “The CFC block or honeycomb structures so obtained are then preferably heated in vacuum or protective atmosphere to temperatures of more than 2000C, to achieve at least a partial graphitizing of the carbon matrix and fibers.” (Column 7, lines 13-16). The ability in the present invention to skip the graphitizing step is significant because not only does it save energy, but also simplifies the fabrication of the instant carbon fiber composite mirror by eliminating a processing step.

Further, independent claim 18 has been amended to recite that the silicon reflective surface is amorphous. In contrast, it is clear from the context that the reflective surfaces of Papenburg are each crystalline (see, for example, the paragraph bridging columns 7 and 8, as well as the paragraph bridging column 8 and 9).

Still further, new independent claim 23 recites a reflective surface comprising silicon that is deposited by a plasma-enhanced chemical vapor deposition (PECVD) technique. A reflective surface made and deposited by this process is significant because the process is carried out at temperatures that are much closer to ambient than other processes. This in turn is significant because, if there are CTE differences between the deposit and the substrate, the small degree of cooling from the (low) processing temperature will keep the thermal stresses small, and can thus help avoid distortion or cracking.

Claims 10 and 11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Papenburg in view of U.S. Patent No. 5,643,663 to Bommier et al. (hereinafter referred to as "Bommier"). Applicants respectfully traverse this rejection.

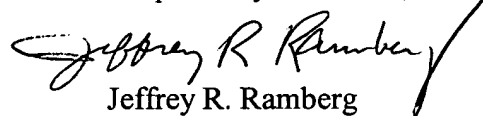
Applicants respectfully submit that Papenburg neither discloses nor suggests the claimed non-graphitic coating of independent claim 1, nor the amorphous reflective surface comprising silicon metal of independent claim 18, or the reflective surface comprising silicon metal applied by PECVD of new independent claim 23. Further, Bommier fails to remedy these deficiencies in Papenburg, applicants respectfully submit. Instead, Bommier is directed to carbon-carbon composite materials for friction applications, and in particular he discloses carbon fiber weaves and roves.

Accordingly, this rejection should be withdrawn.

In view of the sharply amended claims and the above remarks, applicants respectfully submit that the instant application is in condition for allowance. Accordingly, applicants respectfully request issuance of a Notice of Allowance directed to claims 1-23.

Should the Examiner deem that any further action on the part of applicants would be desirable, the Examiner is invited to telephone applicants' undersigned representative.

Respectfully submitted,



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March 15, 2005

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